

WHAT IS CLAIMED IS:

1. An electrode adapted for use with a silicon carbide semiconductor, which electrode serves as an ohmic electrode and comprises a p-type silicon layer formed on the surface of a semiconductor formed from p-type silicon carbide, and a metal silicide layer formed on the p-type silicon layer.

2. The electrode as claimed in claim 1, wherein the p-type silicon layer is formed from p-type silicon having a carrier concentration equal to or higher than that of the p-type silicon carbide.

3. The electrode as claimed in claim 1, wherein the metal silicide layer contains at least one metallic element selected from the group consisting of platinum group elements, Group IVa elements, Group Va elements, Group VIa elements, and Group VIII elements.

4. A method for producing the electrode as claimed in claim 1, which method comprises forming the metal silicide layer by means of laser ablation.

5. The method as claimed in claim 4, which further comprises subjecting the metal silicide layer to at least one of laser irradiation and heat treatment, subsequent to formation of the metal silicide layer by means of laser ablation.

6. The method as claimed in claim 4, which further comprises subjecting the metal silicide layer to at least one of laser irradiation and heat treatment, subsequent to formation of the metal silicide layer by means of laser ablation; and then depositing a metal silicide on the surface of the laser-irradiated or heat-treated metal silicide layer by means of laser ablation.

7. A silicon carbide semiconductor element comprising: a semiconductor formed from p-type silicon carbide; and an electrode adapted for use with a silicon carbide semiconductor, the electrode comprising an ohmic electrode including a p-type silicon layer formed on the surface of the p-type silicon carbide semiconductor, and a metal silicide layer formed on the p-type silicon layer.

8. The silicon carbide semiconductor element as claimed in claim 7, wherein the p-type silicon layer is formed from p-type silicon having a carrier concentration equal to or higher than that of the p-type silicon carbide.

9. The silicon carbide semiconductor element as claimed in claim 7, wherein the metal silicide layer contains at least one metallic element selected from the group consisting of platinum group elements, Group IVa elements, Group Va elements, Group VIa elements, and Group VIII elements.

10. A method for producing the silicon carbide semiconductor element as in claim 7, which method comprises forming the metal silicide layer by means of laser ablation.

11. The method as claimed in claim 10, which further comprises subjecting the metal silicide layer to at least one of laser irradiation and heat treatment, subsequent to formation of the metal silicide layer by means of laser ablation.

12. The method as claimed in claim 10, which further comprises subjecting the metal silicide layer to at least one of laser irradiation and heat treatment, subsequent to formation of the metal silicide layer by means of laser ablation; and then depositing a metal silicide on the surface of the laser-irradiated or heat-treated metal silicide layer by means of laser ablation.